



White paper

Iron Mountain InSight® DXP data tenancy models supported



Introduction

Iron Mountain InSight® Digital Experience Platform (DXP) is a cloud-based SaaS platform designed to provide secure, scalable, and reliable content management and document processing capabilities. To address diverse customer requirements, InSight DXP offers two distinct data tenancy models:

1. Multi-tenant logical tenant separation

2. Single-tenant physical separation

In the **multi-tenant environment**, data is logically separated to enable tenant isolation while leveraging shared cloud infrastructure for compute resources. Each tenant's data resides in a separate MongoDB collection with distinct file storage. Strong access controls, APIs, and authentication mechanisms enable tenants to only access their own data.

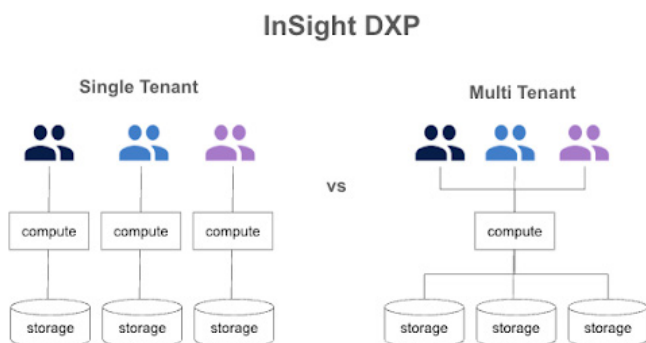
In the **single-tenant environment**, data is physically separated. Each tenant has a dedicated environment, including isolated MongoDB instances and unique cloud resources for compute, storage, and networking. This model offers the highest level of isolation and is designed for clients with stringent security or regulatory requirements.

In terms of **packaging**, InSight DXP provides a multi-tenant deployment model as the default for its Base, Plus and Pro packages. Customers seeking a single-tenant option can choose from the Plus or Pro packages which offer the single tenancy add on option.

This paper explores the architecture, mechanisms, and benefits of each tenancy model in detail.

High-level overview

The diagram below provides a high level overview of the single and multi-tenant approaches.



Multi-tenant logical tenant separation

> Shared cloud resources:

- » Compute resources (e.g., VMs, containers) are shared among tenants to optimize costs.

> Data separation:

- » Data resides in a single MongoDB database but is logically partitioned into separate collections for each tenant.

- » File storage (e.g., S3 buckets or equivalent) is segregated per tenant.

- » Encryption keys are unique to each tenant, ensuring data confidentiality.

> Access controls:

- » API-level controls and tenant-specific access policies restrict access to tenant-specific data - e.g. REST API parameters "{companyId}".
- » Role-based access allows users within a tenant to only access authorized resources.

Single-tenant physical separation

> Dedicated cloud resources:

- » Each tenant has a fully isolated environment, including compute, storage, and networking.

> **Data separation:**

- » Dedicated MongoDB instances and file storage for each tenant.

> **Custom configurations:**

- » Tailored infrastructure and security configurations (e.g. WAF) to meet specific regulatory or compliance needs.

Detailed explanation

Multi-tenant logical tenant separation

The multi-tenant architecture is designed to balance cost efficiency and security while maintaining strict tenant isolation.

Key architectural features

> **MongoDB data partitioning:**

- » All tenant data is stored in a single MongoDB database.
- » Each tenant's data resides in a separate collection within the database.
- » MongoDB's namespace isolation allows that operations on one collection cannot affect others.

> **Storage partitioning:**

- » Files are stored in logically separated directories or buckets (e.g., Amazon S3, Azure Blob Storage).

> **Compute resource sharing:**

- » Tenants share compute resources such as VMs or containers, with resource allocation dynamically managed by the platform.
- » Isolation is achieved at the application level to confirm no cross-tenant interference.

Security mechanisms

> **Encryption:**

- » Data at rest is encrypted using tenant-specific keys.
- » Data in transit is secured using TLS.

> **Access controls:**

- » Tenant-specific REST API parameters "{companyId}" enable requests to be scoped to the correct tenant.
- » Role-Based Access Control (RBAC) enforces granular permissions within each tenant.

> **Monitoring and auditing:**

- » Centralized monitoring tracks activity to identify anomalies.
- » Unit testing and automated testing to enable multi-tenant controls are in place.

Benefits

- > Cost efficiency due to shared infrastructure.
- > High scalability to accommodate multiple tenants.
- > Robust security and isolation mechanisms.

Feature	Description
Data partitioning	Separate MongoDB collections for each tenant
Storage partitioning	Tenant-specific file directories or buckets
Encryption keys	Unique per tenant
Access controls	API and role-based restrictions per tenant

Single-tenant physical separation

The single-tenant architecture is designed for customers with heightened security or compliance requirements.

Key architectural features

> Dedicated MongoDB instances:

- » Each tenant has a separate MongoDB instance or cluster.
- » Enables complete isolation of data and database operations.

> Dedicated cloud resources:

- » Each tenant is provisioned with isolated compute, storage, and networking.
- » No shared compute or storage resources between tenants.

> Customizable infrastructure:

- » Tenants can define custom configurations to align with their operational or regulatory needs (e.g., specific regions, compliance standards).

Security mechanisms

> Physical separation:

- » No overlap in cloud resources between tenants.

- » Data is completely isolated at the infrastructure level.

> Enhanced configurations:

- » Optional advanced security features such as private networking, custom encryption algorithms, and dedicated firewalls.

> Monitoring and auditing:

- » Dedicated monitoring and auditing systems per tenant for granular visibility.

Benefits

- > Maximum security and isolation.
- > Tailored configurations to meet specific requirements.
- > Enhanced control over the environment.

Feature	Description
Data separation	Dedicated MongoDB instances per tenant
Storage separation	Tenant-specific physical storage resources
Compute resources	Fully isolated per tenant
Custom configurations	Tailored to meet compliance and operational needs

Comparison of multi-tenant vs. single-tenant models

Aspect	Multi-tenant logical separation	Single-tenant physical separation
Infrastructure	Shared compute resources	Dedicated compute resources
Data storage	Logical separation in MongoDB collections	Dedicated MongoDB instances
Security isolation	Logical isolation via APIs and access controls	Physical separation at the infrastructure level
Cost efficiency	High	Moderate to low
Customizability	Limited	High
Compliance readiness	Suitable for general use	Suitable for strict compliance requirements

Conclusion

Iron Mountain InSight DXP provides flexible tenancy models to address diverse customer needs. The multi-tenant logical separation model delivers cost efficiency and scalability while ensuring robust data isolation through logical partitioning. The single-tenant physical separation model provides unparalleled security and customization for customers with stringent compliance and regulatory requirements.

By leveraging these models, InSight DXP enables all tenants, regardless of their environment, to benefit from secure, reliable, and high-performing data management solutions.



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